PHOENIX LAKE IRWM RETROFIT

Attachment 1 - Authorization and Eligibility Requirements

1.0 Authorizing Documentation

1.1 The Board of Supervisors of the Marin County Flood Control and Water Conservation District – Flood Zone 9 (MCFCWCDFZ9) has adopted a resolution designating the District Engineer, Farhad Mansourian, to submit the application and execute an agreement with the State of California for a SWFM Grant. **[PLEASE SEE ATTACHED]**

2.0 Eligible Applicant Documentation

2.1 Written Statement by MCFCWCDFZ9 Regarding Eligibility and Authorization

2.1.1 MCFCWCDFZ9 is a local agency as defined in Appendix B of the Guidelines.

2.1.2 The statutory authority under which MCFCWCDFZ9 was formed and is authorized to operate is Chapter 68 of the Appendix to the California Water Code. Following is a brief summary.

The Marin County Flood Control and Water Conservation District is a political subdivision of the State of California and is a separate and distinct agency from the County of Marin. It was established in 1953 by an act of the State Legislature known as the Marin County Flood Control and Water Conservation District Act, which can be found in Chapter 68 of the Appendix to the California Water Code. The boundaries of the District are the same as the boundaries of the County of Marin and the governing Board of the District is the Board of Supervisors of the County of Marin sitting as the Board of Supervisors of the District. Staffing of the District is provided by the County Department of Public Works.

2.1.3 MCFCWCDFZ9 has the legal authority to enter into a grant agreement with the State of California.

2.1.4 Marin Municipal Water District (MMWD) owns and operates Phoenix Lake. MMWD will be a partner agency joining with MCFCWCDFZ9 on the Phoenix Lake IRWM Retrofit. MCFCWCDFZ9 and MMWD have both adopted a Memorandum of Understanding (MOU) regarding the Grant Application and joint use of Phoenix Lake for Flood Damage Reduction, Water Supply, Water Quality, Ecosystem Restoration, and Public Access and Recreation **[PLEASE SEE ATTACHED]**

3.0 GWMP Compliance

3.1 This project proposal does not contain a groundwater management or groundwater recharge component. This project is limited to the management of surface runoff and containment within an existing water supply reservoir. It proposes to reconfigure the operating procedures only so that it can be used to contain runoff during large storms. There will be no impacts to groundwater as existing conditions will be maintained with respect to groundwater.

4.0 Consistency with Bay Area IRWMP

4.1 Phoenix Lake IRWM Retrofit is consistent with the Bay Area IRWMP. It was adopted by the Bay Area IRWMP Coordinating Committee on March 28, 2011 and added to the Bay Area IRWMP with other new projects. **[PLEASE SEE ATTACHED]**

JC

DEPARTMENT OF PUBLIC WORKS

COUNTY OF MARIN
www.co.marin.ca.us/pw

ADMINISTRATION
499-6528

ACCOUNTING
499-7877 • FAX 507-2899

AIRPORT
451-A AIRPORT ROAD
NOVATO, CA 94945
897-1754 • FAX 897-1264

BUILDING MAINTENANCE
499-6576 • FAX 499-3250

CAPITAL PROJECTS
499-7877 • FAX 499-3724

COMMUNICATION MAINTENANCE
499-7313 • FAX 499-3738

DISABILITY ACCESS
499-6528
CALIFORNIA RELAY SERVICE 711

ENGINEERING & SURVEY
499-7877 • FAX 499-3724

FLOOD CONTROL DISTRICT
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COUNTY GARAGE
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LAND DEVELOPMENT
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499-6528

WASTE MANAGEMENT
499-6647 • FAX 446-7373

ALL AREA CODES ARE 415

P. O. Box 4186, San Rafael, CA 94913-4186 • 415/499-6528 • FAX 415/499-3799 • TTY 415/473-3232

Farhad Mansourian, RCE
Director

APPROVED
MAR 22 2011
Marin County
Flood Control & Water Conservation District
Board of Supervisors

March 22, 2011

Board of Supervisors
Marin County Flood Control and Water Conservation District
3501 Civic Center Drive
San Rafael, California 94903

Dear Board Members:

SUBJECT: Resolution Authorizing Submittal of an Application for State Grant Funding of the Phoenix Lake Retrofit Project

RECOMMENDATIONS: 1) Adopt the Resolution; 2) Authorize the District Engineer to execute all agreements, invoices, and documents required by the application process and the financial assistance agreement

SUMMARY: Flood Control Zone 9 (Ross Valley) is seeking funds for the Phoenix Lake Retrofit project which would convert Phoenix Lake to a dual-use facility for water supply and flood control. The California Department of Water Resources is soliciting applications for projects that meet specific requirements with the declared intention of funding projects up to $30 million with a 50% local share. There is $212 million allocated for this round of funding. Staff has determined that the Phoenix Lake Retrofit project meets the grant requirements and would be competitive in the grant review and award process. Our grant application would request 50 percent, or $10 million, of the estimated project cost of $20 million.

The Department of Water Resources, as part of the application process, requires a Board resolution authorizing the District to submit the application and enter into the financial agreement should the project receive a grant award. The attached resolution addresses that requirement. The resolution would authorize the District Engineer to sign all agreements, invoices, amendments, and other documents related to and required by the grant application process and the financial agreement.

In addition, as Phoenix Lake is the property of the Marin Municipal Water District (MMWD), the grant application requires a signed Memorandum of Understanding (MOU) between the Flood Control District and MMWD agreeing to support the Phoenix Lake Retrofit project. A draft MOU is being reviewed and readied for approval by both MMWD and the Flood Control District. Because of the tight timeline for submitting the grant application, we are requesting that your Board authorize the District Engineer to sign the MOU and other documents and agreements related to or required by the application.

FISCAL IMPACT: If awarded the grant, Staff will return to the Board with necessary budget adjustments. The total estimated impact to Flood Control Zone 9 would be $10 million. There is no impact to Flood Zone 9 or the General Fund by the requested action.

REVIEWED BY:	[ ]	Department of Finance	[X]	N/A
	[ ]	County Counsel	[X]	N/A
	[ ]	Human Resources	[X]	N/A

Respectfully submitted,

Tracy J. Clay
Principal Engineer
Marin County Flood Control and Water Conservation District

cc: Paul Helliker, General Manager, MMWD
Michael Ban, Principal Engineer, MMWD

RESOLUTION NO. 2011-17
RESOLUTION OF THE MARIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT AUTHORIZING THE PRESIDENT TO SUBMIT AN APPLICATION AND EXECUTE AN AGREEMENT WITH THE STATE OF CALIFORNIA FOR A STORMWATER FLOOD MANAGEMENT GRANT

WHEREAS, the California Department of Water Resources has issued a solicitation for applications for Stormwater Flood Management grants, funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E); and

WHEREAS, the Marin County Flood Control and Water Conservation District has identified the "Phoenix Lake Retrofit", hereafter the "PROJECT", as being fully responsive to the requirements for the grant; and

WHEREAS, the Marin County Flood Control and Water Conservation District and the Marin Municipal Water District agree to enter into a Memorandum of Understanding to cooperate in identifying the elements of the PROJECT and in seeking funding for the PROJECT; and

WHEREAS, the County of Marin is authorized to enter into a financial assistance agreement with the State of California.

NOW, THEREFORE, BE IT RESOLVED that the Marin County Board of Supervisors of the Flood Control District hereby authorizes that application be made to the California Department of Water Resources to obtain Stormwater Flood Management grant funding pursuant to the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E); and

BE IT FURTHER RESOLVED that the Marin County Board of Supervisors of the Flood Control District hereby authorizes the President of the Board of Supervisors to enter into an agreement to receive a grant for the "Phoenix Lake Retrofit" project; and

BE IT FURTHER RESOLVED that the Marin County Board of Supervisors of the Flood Control District hereby authorizes the District Engineer to act as the Project Director and to execute any financial assistance agreements or amendments, agreements, invoices, or any other documents related to or required for the administration of said application and agreement.

PASSED AND ADOPTED at regular meeting of the Board of Supervisors of the County of Marin held on the 22nd day of March, 2011, by the following vote:

AYES:	SUPERVISORS	Judy Arnold, Charles McGlashan, Steve Kinsey, Susan L. Adams
NOES:	NONE	
ABSENT:	SUPERVISOR	Harold C. Brown, Jr.

PRESIDENT, BOARD OF SUPERVISORS
MARIN COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

ATTEST:

CLERK
Marin County Flood Control and
Water Conservation District

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE MARIN COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
AND
THE MARIN MUNICIPAL WATER DISTRICT
REGARDING THE APPLICATION FOR GRANT FUNDS FOR THE CONVERSION OF PHOENIX LAKE TO A DUAL-USE FACILITY FOR WATER SUPPLY AND FLOOD CONTROL

THIS MEMORANDUM, made and entered into this 8TH day of April 2011, by and between the MARIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, hereinafter referred to as "DISTRICT", and the MARIN MUNICIPAL WATER DISTRICT, hereinafter referred to as "MMWD", both in the State of California, collectively the ("Parties");

WITNESSETH:

SECTION 1: RECITALS.

A. The Board of Supervisors of the DISTRICT and the Board of Directors of MMWD wish to enter into a Memorandum of Understanding ("MOU") and collaborate for the submittal of an application for a Proposition 1E, Round 1 Grant (Grant) which would fund the design, environmental study, permitting, plans, specifications, and construction of the Phoenix Lake Detention Basin Project ("Project"). That Project would convert Phoenix Lake from a water supply facility to a dual use facility, a facility for both water supply and flood control purposes.

B. The Parties understand and acknowledge that such an application is necessary to evaluate the feasibility of using Phoenix Lake as a dual-use facility.

C. The Parties acknowledge and agree that the sole purpose of this MOU is for the Parties to collaborate in such a manner so as to allow the DISTRICT to submit an application for such a Grant. The Parties also acknowledge that, currently, the MMWD Board has not committed to any action other than collaborating on such a Grant application.

D. Phoenix Lake is owned and operated by MMWD and has, for over 100 years, provided an essential domestic water supply for the citizens of Marin County.

E. Both Parties agree that the water supply provided by Phoenix Lake is essential to MMWD's mission of meeting the current and future water supply needs of its customers.

F. The Parties also agree, in concept, with the proposed dual use of Phoenix Lake as both a water supply facility and a flood control facility pending the further study, environmental review, engineering research and collaboration that will be necessary before the feasibility of this Project could be determined and any final decision on the Project could be presented to the MMWD Board and the DISTRICT Board of Directors for consideration.

G. The people of Ross Valley elected to assess the property owners in the Valley an annual fee to create an integrated watershed management plan for flood control.

H. The DISTRICT intends to allocate the matching funds required by the Grant up to 50% of the estimated project cost.

I. The proposed use of Phoenix Lake as a dual-use facility is an accepted project of the Bay Area Integrated Water Management Plan (BAIRWMP) and is aligned with the Goals and Objectives of the BAIRWMP.

J. The California Department of Water Resources is soliciting proposals for projects that are accepted into the regional BAIRWMP.

K. The DISTRICT desires to create the infrastructure to reduce flood incidents in the County's Flood Zones and is interested in making application for a Grant to determine the feasibility of the Project.

L. The DISTRICT believes that converting Phoenix Lake to a dual use facility and ultimately operating it as a flood control detention basin during large rain events, in concert with other flood control detention basins, could significantly reduce flood incidents in the Ross Valley – known as Flood Zone 9.

M. The Parties anticipate that should the Grant be disbursed to the DISTRICT, additional agreements would need to be executed for the DISTRICT to conduct any studies of Phoenix Lake. In addition, any agreement between the Parties to undertake the full scope of the Project will be dependent on multiple factors, including but not limited to adequate funding, the outcome and requirements of the environmental study (CEQA), ability of the engineering design to meet the needs and requirements of both agencies, and the DISTRICT'S ability to meet all requirements placed on the project by resource, regulatory and permitting agencies.

N. The DISTRICT anticipates that the Project may also improve downstream habitat for Steelhead Trout (*Oncorhynchus mykiss*), increase the volume capacity of the reservoir, improve the existing trail system around the reservoir for recreational use, and improve the strength and seismic integrity of the dam as needed.

SECTION 2: DISTRICT'S RESPONSIBILITIES:

A. The DISTRICT Shall:

1. Bear all costs associated with making the Grant application including but not limited to paying a consultant to prepare and submit the Grant Application to the California Department of Water Resources by the deadline date of April 15, 2011.

2. Incorporate and fund all planning, permitting and regulatory requirements, approvals and improvements necessitated by the conversion of Phoenix Lake to a dual-use facility as required by both Parties in the Grant application Work Plan.

3. Work with MMWD staff to insure that its requirements and concerns are included in the Grant application.

4. Pay a consultant to compile and analyze all relevant data that is needed to complete the Grant application.

5. Indemnify, hold harmless, release and defend MMWD, its Board of Directors, and the officers, agents and employees of MMWD from any and all liability, actions, claims, damages, costs or expenses, including attorneys' fees and the costs and expenses of suit which may be asserted by any person, arising out of this MOU, the application for the Grant or the design, environmental, and permitting studies to be funded by the grant, excepting any and all liability, actions, claims, damages, costs or expenses, including attorneys' fees and the costs and expenses of suit caused by or as a result of the negligent or wrongful acts or omissions, or the willful misconduct of MMWD, its Board of Directors, officers, agents or employees.

B. MMWD Shall:

1. Make available its staff to provide the DISTRICT and its Consultant all required data and other information needed to complete the Grant application in a timely manner.

2. Review the Grant application form before submittal to CA DWR and submit edits, comments, and/or corrections in a timely manner.

3. Provide the DISTRICT with the AB1420[1] (Water Demand Management Measures law) and Water Meter Compliance information as signed original documents as required by the Grant application form.

4. Work with the DISTRICT to provide all necessary information for the evaluation of required improvements to the Phoenix Lake facility.

C. The District Engineer is hereby declared to be the authorized DISTRICT representative in administering this MOU. The MMWD General Manager is hereby declared to be the authorized MMWD representative in administering this MOU. Either Party may change its designated representative by providing written notice of the same to the other Party.

D. Miscellaneous:

1. Agreement Binding: The terms and provisions of this MOU shall extend to and be binding upon and inure to the benefit of the heirs, executors, and administrators or to any approved successor, as well as to any assignee or legal successor to any party to this MOU.

2. Merger: This writing is intended both as the final expression of the agreement between Parties hereto with respect to the included terms and as a complete and exclusive statement of the terms of the agreement, pursuant to Code of Civil Procedure Section 1856. No modification of this agreement shall be effective unless and until such modification is evidenced by a writing signed by both parties.

3. Cooperation: PARTIES pledge cooperation in order that a mutually satisfactory Grant application is achieved.

[1] Assembly Bill AB 1420 (Stats. 2007, ch. 628) amended the Urban Water Management Planning Act, Water Code Section 10610 et seq., to require, effective January 1, 2009, that the terms of, and eligibility for, any water management grant or loan made to an urban water supplier and awarded or administered by the Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), or California Bay-Delta Authority (CBDA) or its successor agency (collectively referred to as "Funding Agencies"), be conditioned on the implementation of the water Demand Management Measures (DMMs) described in Water Code Section 10631(f).

4. No Third Party Beneficiaries: Nothing contained in this agreement shall be construed to create and the parties do not intend to create any rights in third parties.

5. Invalidity of Particular Provisions: If any term, covenant or condition of this MOUM or the application thereof to any person or circumstance shall to any extent be invalid or unenforceable, the remainder of this MOU or the application of such term, covenant or condition to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term, covenant and condition of this MOU shall be valid and be enforced to the fullest extent permitted by law.

6. No Waiver: The waiver by any Party of any default under this MOU shall not operate as a waiver of any subsequent breach of the same or any other provision of this MOU.

7. Entire Agreement: This MOU contains the entire agreement between the Parties hereto and no term or provision thereof may be changed, waived, discharged or terminated unless made in writing and executed by both Parties hereto.

8. Time is of the Essence: Time is of the essence with respect to the performance of every provision of this MOU which time or performance is a factor.

9. Mediation:

   A. Any dispute or claim in law or equity between the Parties arising out of this MOU, if not resolved by informal negotiation between the Parties, shall be mediated by the Parties. Mediation shall consist of an informal, non-binding conference or conferences between the Parties and the mediator jointly, then in separate caucuses wherein the judge will seek to guide the Parties to a resolution of the case. The Parties shall agree to a mutually acceptable mediator.

   B. If mediation is unsuccessful, the Parties may avail themselves of any other remedies.

10. Applicable Law: This MOU shall be construed and enforced in accordance with the laws of the State of California.

11. No Presumption Regarding Drafter: The Parties acknowledge and agree that the terms and provisions of this MOU have been negotiated and discussed between the Parties and their attorneys, and this MOU reflects their mutual agreement regarding the same. Because of the nature of the negotiations, and discussions it would be inappropriate to deem any Party to be the drafter of this MOU. Therefore, no presumption for or against validity, or as to any interpretation hereof, based upon the identity of the drafter, shall be applicable in interpreting or enforcing this MOU.

12. Assistance of Counsel: Each Party to this MOU warrants as follows:

   A. That each Party had the assistance of counsel in the negotiation for, and the execution of, this MOU and all related documents; and

   B. That each Party has lawfully authorized the execution of this MOU.

13. Severability: If any term, provision, covenant or condition of this MOU is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this MOU shall continue in full force and effect.

14. Section Headings: The section headings contained in this MOU are for convenience and identification only and shall not be deemed to limit or define the contents of the sections to which they relate.

15. Counterparts: This MOU may be executed in multiple counterparts each of which shall be deemed an original MOU and all of which shall constitute one and the same MOU.

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Understanding by their duly authorized officers as of the day and year first above written.

MARIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

District Engineer

MARIN MUNICIPAL WATER DISTRICT

Board President

ATTEST:

By: _____
Board Secretary

APPROVED AS TO FORM:

By: _____
County Counsel

APPROVED AS TO FORM:

By: _____
General Counsel

Appendix G

New Projects Added to IRWMP

March 2011

Appendix G: New Projects Added to the IRWM Plan (as of March 28, 2011)

On March 28, 2011, the Bay Area IRWMP Coordinating Committee (CC) agreed by consensus to add 13 new flood and stormwater management projects into the IRWM Plan, and update the description of one existing project in the Plan. This appendix documents the addition of the new projects listed in **Table 1** and the updated project description in **Table 2**.

Table 1: New Projects Added to the IRWM Plan

Project No.	Project Name	Lead Agency
139	Lower Redwood Creek Restoration	Golden Gate National Parks Conservancy
140	Lake Dalwigk Habitat Enhancement Project	Vallejo Sanitation and Flood Control District
141	Bayfront Regional Flood Protection System Improvements and 5th Avenue Pump Station Renovation Project	City of Redwood City
142	San Francisquito Creek Flood Protection and Ecosystem Restoration Capital Improvement Project, East Bayshore Road to San Francisco Bay	San Francisquito Creek Joint Powers Authority
143	Cesar Chavez Street Flood and Stormwater Management Sewer Improvement Project	San Francisco Public Utilities Commission
144	Sunnydale Flood and Stormwater Management Sewer Improvement Project	San Francisco Public Utilities Commission
145	Phoenix Lake IRWM Retrofit	Marin County Flood Control and Water Conservation District, Flood Zone 9 (FZ9)
146	Quartermaster Reach	Golden Gate National Parks Conservancy
147	Multi-Benefit Flood and Runoff Management for Sonoma Valley	City of Sonoma, Sonoma County Water Agency
148	Stivers Lagoon Marsh Complex Restoration	Alameda Flood Control and Water Conservation District
149	Sabercat Historical Park Master Plan[1]	City of Fremont
150	Grimmer Greenbelt Gateway (Line G Channel Enhancement)	Alameda County Flood Control and Water Conservation District
151	Arroyo de la Laguna, Verona Phase I[2]	Urban Creeks Council, Zone 7 Agency
152	Improving Quantitative Precipitation Information for the San Francisco Bay Region[3]	City and County of San Francisco, Dept of Public Works, Bureau of Engineering

[1] This project was considered more of a planning effort than an implementation project and analogous to Tier 2 projects in the 2006 IRWMP (Appendix E-1 of the IRWMP).

[2] This project is an update of the R10-4 Arroyo de la Laguna (ADLL) Improvement Project 4, included in Appendix E-1 of the IRWMP, and listed as a Tier 2 project from the FP-SW Functional Area document.

[3] This project was recommended by the Project Screening Subcommittee for addition to the IRWMP through an email vote.

Table 2: Updated Descriptions for Existing Projects in the IRWM Plan

Project No.	Project Name	Lead Agency	IRWMP Status
49	Lower Silver Creek, Reaches 4-6 and Lake Cunningham	Santa Clara Valley Water District	This project is currently in the IRWMP but has been updated to include Lake Cunningham, in addition to Lower Silver Creek, Reaches 4-6. An updated project description is attached at the end of this document.

New Projects Added to the IRWM Plan

In anticipation of the Proposition 1E Flood and Stormwater Management grant funding opportunity, the Bay Area IRWM Coordinating Committee (CC) announced that it was accepting submittals for new stormwater flood management projects for review, evaluation and inclusion in the IRWM Plan.

Project proponents were requested to submit their proposed projects to the Bay Area IRWM website by February 25, 2011. A preliminary list of projects was circulated for consideration at the February 28, 2011 CC meeting. The project list was then evaluated by the Project Screening subcommittee on March 10, 2011, based on consensus to carry out screening level review for the projects to be added to the IRWM Plan. The Project Screening subcommittee approved recommending the addition of the projects based on two factors:

i. All projects are within the regional IRWM boundary
ii. All the projects demonstrated benefits in multiple water resource management areas

With consensus from the Bay Area IRWM Coordinating Committee (CC), the projects listed in Table 1 were approved for addition to the IRWM Plan on March 28, 2011.

Figure 1 presents the general locations of the projects added into the IRWM Plan and the lead agency for the project. Individual project information and meeting notes documenting the Coordinating Committee's and Project Screening subcommittee's decision-making process in adding the new projects, and detailed project descriptions are included at the end of the document.

Figure 1: General Location of New Projects Added to the IRWM Plan as of March 28, 2011

Bay Area IRWMP Project Information Sheet* version 06.07.2010

Project Name:

Phoenix Lake IRWM Retrofit

Responsible Agency:

Please identify <u>one</u> agency that is involved in the project and is responsible for providing information for inclusion in the Bay Area IRWMP.

Marin County Flood Control and Water Conservation District, Flood Zone 9 (FZ9)

Other Participating Agencies:

Please identify other agencies that are involved in the project, if applicable.

Marin Municipal Water District (MMWD)

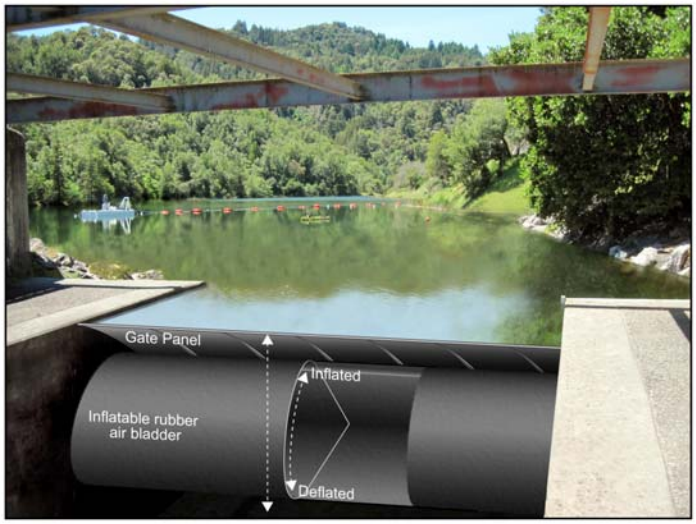

FIGURE 8: Conceptual view of the Phoenix Lake spillway with an inflatable/deflatable rubber dam raised by 6 feet, adding about 120 acre-feet of floodwater detention capacity.

Summary Description:

Please provide a one paragraph description of the project. If you would like to include additional information, please do so under "Detailed Description" at the end of this form.

Located in central Marin County and encompassing the City of Larkspur, the Towns of Ross, San Anselmo, and Fairfax and the unincorporated communities in the 28 square mile watershed, the Phoenix Lake IRWM Retrofit is an important component of the greater Ross Valley Watershed Flood Reduction Program. Funding for the Program will derive from a drainage fee ($40 million over 20 years) which was approved by Flood Zone 9 voters in 2006 following the disastrous flood of December 31, 2005. The Program expressly integrates restoration of creek ecological function and other public riparian resource enhancements with the primary objective of flood reduction. The guiding planning document for the Program, the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft)), identifies five flood detention basins for capturing and attenuating flood flows and over 160 in-channel improvements aimed at increasing flood conveyance capacity while simultaneously improving the ecological function of Corte Madera Creek and its tributaries. These detention basins and in-channel capacity improvements work together to provide 100-year flood protection to homes and businesses in flood-prone Ross Valley. Phoenix Lake, an existing water supply reservoir owned and operated by Marin Municipal Water District, is the keystone project of the Program owing to its sizable attenuation capacity and significant effect in reducing flood flows. Originally built in 1906 for municipal water supply, the 100-year old Phoenix Lake dam requires major retrofit in order to function as a duel-purpose water supply-flood detention basin. The earthen embankment dam requires structural strengthening to improve seismic stability; the spillway crest needs to be raised six feet for added attenuation capacity and drought reserve water supply; and the intake/outlet works of the low-level drain pipeline requires modification to enable rapid lake drawdown in advance of a forecasted flood. Concomitant with these improvements are installation of a "Solar Bee ©" epilimnetic circulation device to improve lake water quality (i.e., water clarity and dissolved oxygen through algal reduction) and reduce invasive shoreline aquatic vegetation; instream flow release of deeper, cooler water from the hypolimniom by way of the modified intake of the low-level drain pipeline to improve

downstream water quality and aquatic habitat for target salmonids and other cold water species; and improvements to parking, roads, and lakeside trails to reduce erosion and sediment delivery to the lake, improve public access and overall enjoyment of the lake. The Master Plan Study provides engineering analysis, preliminary designs, and costs for the Phoenix Lake IRWM Retrofit.

Proposition 50 Water Management Strategies Addressed:

Please select the water management strategies addressed by this project. Check all that apply.

- ☒ Ecosystem Restoration
- ☒ Environmental and habitat protection and improvement
- ☒ Water Supply Reliability
- ☒ Flood management
- ☐ Groundwater management
- ☒ Recreation and public access
- ☒ Storm water capture and management
- ☒ Water conservation
- ☒ Water quality protection and improvement
- ☐ Water recycling
- ☒ Wetlands enhancement and creation
- ☐ Conjunctive use
- ☐ Desalination
- ☐ Imported water
- ☐ Land use planning
- ☒ NPS pollution control
- ☒ Surface storage
- ☒ Watershed planning
- ☒ Water and wastewater treatment
- ☐ Water transfers

Primary Water Strategy:

Please list the primary water management strategy to facilitate project classification. Please select only ONE of the water management strategies listed above.

Flood Management

Project Benefits:

Proposition 84 & 1E: Project Benefits as Eligibility Criteria

Please select the benefits provided by this project. Check all that apply. ***Need one or more****.*
(from page 17 of draft Guidelines)

- ☒ Water supply reliability, water conservation and water use efficiency
- ☒ Stormwater capture, storage, clean-up, treatment, and management
- ☒ Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- ☒ Non-point source pollution reduction, management and monitoring
- ☐ Groundwater recharge and management projects
- ☐ Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users
- ☒ Water banking, exchange, reclamation and improvement of water quality
- ☒ Planning and implementation of multipurpose flood management programs
- ☒ Watershed protection and management
- ☒ Drinking water treatment and distribution
- ☒ Ecosystem and fisheries restoration and protection

Proposition 1E Additional Eligibility Criteria:
*Please select the criteria met by this project. **All must apply**.*
(from page 18 of draft Guidelines)

☒ Designed to manage stormwater runoff to reduce flood damage.
☒ Consistent with the applicable Regional Water Quality Control Plans (Basin Plans) (default is "yes" for projects in the Bay Area IRWMP).

☒ Yield multiple benefits the may include one of the following elements (**need one for eligibility**): *(from page 7 of draft 1E PSP)*
- *Groundwater recharge* ☐
- *Water quality improvement* ☒
- *Ecosystem restoration and benefits* ☒
- *Reduction of instream erosion and sedimentation* ☒

Purpose and Need:

Please provide a detailed description of the purpose and need for the project. Include discussion of the project's goals and objectives and of the critical impacts that will occur if the project is not implemented.

There is a need to reduce the frequency and severity of flooding in Ross Valley for the protection of property and public safety. The current capacity of Corte Madera Creek (below Phoenix Lake and the Ross Creek confluence) is about 3,600 cfs, which corresponds to about the 17 percent-annual-chance flood (i.e., 6-year flood). Several times in recent history the Ross Valley has been flooded by overflow from Corte Madera Creek with varying degrees of severity. Prior to establishment in 1951 of the USGS streamflow gaging station on Corte Madera Creek in Ross, flooding was reported in 1914, 1925, 1937, and 1942. Since the Corte Madera Creek streamflow gage in Ross has been in operation, flood flows have been recorded in 1951, 1955, 1958, 1967, 1969, 1970, 1982, 1983, 1986, 1994 , and 2005. Of these, the two most severe floods occurred in 1982 and 2005, with peak discharges of approximately 7,200 cfs and 6,800 cfs; the percent-annual-chances of which were approximately 0.6 percent and 1 percent, respectively. Historical flooding has caused extensive property damage and economic hardship to residents, businesses, and local governments, and has threatened the lives of those living in the floodplain, with at least one recorded death occurring in the 1955 flood and at least one rescue of a stranded motorist reported by the Ross Valley Fire Department during the 2005 flood.

In accordance with its Congressional authorization, the Army Corps of Engineers has plans to increase creek conveyance capacity below the Ross Creek confluence to about 5,400 cfs, or about the 4 percent-annual-chance flood (i.e., 25-year flood). This is considered a major improvement but the Ross Valley community desires a further reduction in the flood hazard. In order to increase the effectiveness of the Corps' design and achieve a more appropriate 1 percent-annual-chance level of flood protection (i.e., 100-year flood protection), the 100-year flood discharge at the Ross Creek confluence needs to be reduced by 1,400 cfs, from 6,800 cfs down to 5,400 cfs. This reduction is achievable through detention basins, and retrofit of Phoenix Lake is key since this basin could reduce the 100-year flood discharge by about 650 cfs, or nearly half of the total amount needed. Without the Phoenix Lake IRWM Retrofit, public safety and property downstream of the Ross Creek confluence in the communities of Ross, Kentfield, Larkspur and Greenbrae would remain at-risk of flooding.

There is a need to restore the ecological health and function of Corte Madera Creek and its tributaries. The Basin Plan for the San Francisco Bay Region (SFBRWQCB, 2010) designates beneficial uses for Ross Creek and Corte Madera Creek, which include COLD, MIGR, RARE, SPWN and others. The creek provides important habitat for threatened and endangered species and is considered an "anchor stream" in

the NMFS recovery plans for coho salmon and steelhead trout. Although overall ecosystem functions of the creek are still essentially intact, the freshwater aquatic and creek riparian habitats have been reduced and degraded by human activities and the ongoing presence of development. By the late 1800s, cattle grazing, deforestation, and dredging for navigation began directly modifying creek corridors and increasing the severity of rainfall and sediment-laden runoff. Railroad prisms, bridges, and other permanent infrastructure were installed flanking and spanning the creeks, often creating grade breaks or otherwise altering the creek bed making it difficult for fish to pass through. In the 1900s, encroachment by urban development gradually filled in along the edges of the creek corridors eliminating portions of the riparian canopy and natural creek bank vegetation and encouraging invasion by non-native vegetation. With construction of Phoenix Lake in 1906, baseflow water temperatures in Ross Creek and farther downstream warmed during the dry season as historical seepage of cool groundwater into upper Ross Creek was replaced by spillway overflow from the warmer (and lighter) upper layer of the newly formed lake. All of these factors have contributed to today's aquatic and riparian habitat conditions below Phoenix Lake that can be characterized as sub-optimal. The Phoenix Lake IRWM Retrofit includes modification of the intake/outlet works of the low-level drain pipeline. This modification will enable instream flow release of cooler water from the lake hypolimniom and improve downstream water quality and aquatic habitat for target salmonds and other coldwater species, consistent with the Basin Plan's designated benificial uses of the creek . Without the Phoenix Lake IRWM Retrofit, aquatic habitat conditions will continue to be sub-optimal and recovery of target salmonids and other species will continue to be challenged.

There is a need to provide more reliability and flexibility to MMWD's water supply. The Phoenix Lake IRWM Retrofit will restore the spillway crest to its pre-1985 elevation 180 ft, thereby increasing the storage capacity of the lake and adding up to about 120 acre-feet of drought reserve supply to the MMWD system. The Phoenix Lake IRWM Retrofit also includes installation of a "Solar Bee ©" epilimnetic circulation device. This device will reduce growth of floating algea, thereby improving the water quality, lake clarity, and reducing treatment costs during the summertime when lake supply is most needed. Without the Phoenix Lake IRWM Retrofit, MMWD will continue to explore other options to achieve its water supply reliabilty and flexibility goals.

Finally, there is a need to enhance opportunities for public enjoyment of the lake. Related to this need is the need to reduce lake sedimentation. Comparison of the original lake bathymetric contours with recent contours surveyed in 2009 indicates that the lake has lost about 100 acre-feet to sedimentation, or about 25% of its original storage capacity since 1906. The Phoenix Lake IRWM Retrofit will implement necessary improvements to parking facilities, roads, and trails, as well as culverts where these features cross over tributary drainages. These improvements will aim to enhance public access, safety, and reduce erosion and the delivery of sediment to lake. Without the Phoenix Lake IRWM Retrofit, lake sedimentation will continue at historical rates and opportunities for public enjoyment of the lake will remain at current levels.

Project Status and Schedule:

Please provide the actual or projected start and finish dates for each of the following project stages. If any stage does not apply to the project please enter N/A.

Stage	Duration	Start Date	Finish Date
Planning	N/A	N/A	N/A
Demonstration Project	N/A	N/A	N/A
Design	12 months	January 2012	December 2012
Environmental Documentation / Permitting	22 months	June 2012	March 2014
Construction	7 months	April 2014	October 2014

Additional Notes:

Planning has already been completed and is documented in the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft).

A Demonstration Project will not be needed.

Readiness to Proceed:

Please clearly describe project readiness and realistic start date; include status of design, environmental review and securing required matching funds.

This project is well-developed and is ready to proceed. The primary reason for the project's high state of readiness is attibutable to the fact that Phoenix Lake is an existing lake, formed by an earthen embankment dam on Ross Creek (tributary to Corte Madera Creek), that was built by MMWD in 1906. MMWD holds senior water rights to flows in Ross Creek/Corte Madera Creek. For these two reasons, many of the regulatory and technical challenges otherwise associated with constructing an entirely new facility will be avoided. The main challenge that remains will be obtaining approval from DWR-DSOD for dam modifications and flood detention operations. This can be achieved through engineering design of necessary modifications to the dam embankment and spillway to provide seismic stability and adequate flood passage capacity. Other challenges that may remain will be obtaining applicable environmental regulatory permits that may be required, including Army Corps 404 permit (and associated ESA Section 7 consultation), Regional Board 401 Certification, and Fish and Game Stream/Lake Alteration Agreement.

Planning and feasibility design and cost estimates for the Phoenix Lake IRWM Retrofit have been completed and are documented in the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft).

Flood Zone 9 and MMWD are working together to prepare a mutually acceptable Memorandum of Understanding for joint use of Phoenix Lake for flood control and water supply operations. The MOU is scheduled for consideration for approval by the respective Boards in early April 2011.

Required matching funds will be derived from a drainage fee that is being levied on properties within the Ross Valley Flood Zone 9. Levy of the drainage fee was approved by Flood Zone 9 voters in 2006 following the disastrous flood of December 31, 2005. The drainage fee will generate at least $40 million over a 20 year period.

Integration with Other Activities:

Please identify any linkages between the schedule of this project and the schedules of other projects, if applicable. Please discuss the integration of the project with other Bay Area IRWMP projects.

The Phoenix Lake IRWM Retrofit can be implemented and operated as a stand-alone project with independent utility, function, and benefits. It can substantially reduce flooding in Ross, Kentfield, Greenbrae, and Larkspur; improve water supply reliability and water quality of the MMWD system; deliver more reliable, cooler instream flows to Ross Creek and Corte Madera Creek and thereby improve downstream aquatic and riparian habitat during the dry season; improve lake clarity; reduce growth of invaisive shoreline vegetation; reduce lake sedimentation; and, enhance overall public access and enjoyment of the lake.

However, it should be pointed out that the benefits of this project will be enhanced, synergistically, through completion of the Army Corps of Engineers' project farther downstream in Corte Madera Creek. The Army Corps project is scheduled for completion in 2015. The Army Corps project is planned to include, at a minimum, removal of an existing timber bulkhead/fish ladder, which historically has acted as an impediment to fish passage and migration, and other in-channel improvements aimed at increasing the capacity of Corte Madera Creek to 5,400 cfs. These improvements will enhance fish passage and allow migrating coho and steelhead better access into Ross Creek below Phoenix Lake. Working in concert, projects identified in the Ross Valley Watershed Flood Reduction Program, including the keystone Phoenix Lake IRWM Retrofit, and the Army Corps project can provide a 100-year level of flood protection to Ross Valley and substantially restore the ecological function of Corte Madera Creek and its tributaries.

Cost and Financing:

Please identify the capital cost and operation and maintenance cost of the proposed project. Please indicate the base year (e.g. CCI) for all costs. Please identify the beneficiaries, potential funding/financing options for project implementation, and ongoing support and financing for operation and maintenance of the project once implemented.

The capital cost of the Phoenix Lake IRWM Retrofit is estimated at $20 million based on 2011 dollars.

Project beneficiaries will be the citizens of Ross Valley Flood Zone 9, water users and customers of MMWD, and members of the public who use and enjoy the Phoenix Lake recreational area.

Cost sharing arrangements between FZ9 and MMWD for project implementation and operations and maintenance of the project once implemented will be outlined in the forthcoming MOU. Funding options for FZ9 include borrowing against the future revenues that will be generated by the Ross Valley Watershed flood drainage fee. Funding options for MMWD include revenues from water sales.

Benefits and Impacts:

Please provide a detailed discussion of the projected benefits and impacts of the project, both locally and for the region. Please include an evaluation of impacts/benefits to other resources, such as air quality or energy.

The Phoenix Lake IRWM Retrofit will offer a broad range of benefits to the citizens of Ross Valley and the region.

Flood Management: The project will provide public safefty and a reasonable degree of protection from flood damage to properties in Ross, Kentfield, Larkspur, Greenbrae by reducing flood flows. During the

100-year flood event, the project can reduce flood flows by about 650 cfs. In conjunction with other Ross Valley Watershed Flood Reduction Program projects and the Army Corps of Engineers' Corte Madera Creek project, the project can provide a 100-year level of flood protection to these communities.

Water Supply: The project will add about 120 acre-feet of storage to Phoenix Lake for use by MMWD for drought reserve supply.

Water Quality: The project will improve water quality in Phoenix Lake by reducing the growth of algea and invasive shoreline vegetation. These improvements in water quality will enhance aquatic habitat conditions in the lake and reduce the cost of water treatment to MMWD.

Aquatic and Riparian Habitat: The project will improve instream flow conditions below Phoenix Lake Dam by releasing cooler water from the lower level of the lake. These cool water releases will improve summer rearing habitat for salmonids and other coldwater species of concern. During the wet season, the project's reduction in flood flows will also provide a degree of protection from scour to salmonid spawning sites.

Public Enjoyment: The project will enhance access and utilzation and overall enjoyment of the lake area by improving parking, roads, and trails. The aesthetic appeal of the lake and, possibly, lake fishing will be enhanced by the reduction in algal and invasive aquatic weed growth and improved lake water clarity.

The Phoenix Lake IRWM Retrofit is expected to have some impacts, but these impacts are mostly associated with construction and, as such, are expected to be temporary.

Lake Emptying and Drying: In order to strengthen the earthen dam and modify the intake/outlet works of the drain pipeline, the lake will need to be temporarily emptied. Using the existing pump station, the water can be pumped to other MMWD reservoirs to minimize water loss. Aquatic organisms living in the lake will be saved or relocated to the extent practical. Birds and other wildlife that depend on the lake for forage will be temporarily impacted. MMWD's other nearby lakes, including Lagunitas, Bon Tempe, and Alpine Lakes, may offer temporary replacement for forage.

Interruption in Public Use: Construction is planned for summer 2014. Summertime is the peak period of use by hikers and fishermen. During the construction period, the lake area will be off limits to the public. Public use can resume in fall 2014.

Construction Disturbance: The Town of Ross and other nearby communities may experience disturbances arising from increased truck traffic and other construction-related activities.

The project is not energy intensive, so its impacts on air quality and energy resources is expected to be minimal.

Disadvantaged Communities / Environmental Justice:

Please include a specific discussion of how the project will benefit or impact disadvantaged communities or environmental justice goals.

The Phoenix Lake IRWM Retrofit is located near the Town of Ross in Marin County. Based on the socio-economic status of the Town of Ross and the greater Ross Valley area, the project will not provide significant benefit to disadvantaged communities nor significantly advance environmental justice goals. It should be noted, however, that Phoenix Lake is a public recreation facility that is visited and enjoyed by

individuals from throughout the SF Bay area covering the full spectrum of the economic status, including disadvantaged and low-income groups.

Environmental Compliance Strategy:

Please provide a detailed description of how the project will comply with all applicable environmental review requirement, including CEQA and/or (if applicable) NEPA. For ongoing CEQA/NEPA work, indicate when required documentation would be completed. Also, include discussion of how compliance with local, county, State and federal permitting requirements will be achieved.

The Phoenix Lake IRWM Retrofit will be subject to environmental review under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FZ9 and the Army Corps of Engineers will be the lead agencies under CEQA and NEPA, respectively. A joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) or Negative Declaration/Finding of No Significant Impact, whatever the case may turn out to be, will likely be the best way to satisfy both CEQA and NEPA requirements. A Joint EIR/EIS, or Negative Declaration/FONSI, is a single document that analyzes the environmental impacts of an individual project.

The Phoenix Lake IRWM Retrofit will also be subject to the regulatory permitting authority of several federal and state agencies. The following list identifies the required permits/approvals that are anticipated.

List of Approvals and Permits Required for the Master Plan (Agency; Trigger; Approval; Submittal)
1. US Army Corps of Engineers (USACE); Discharge of fill within ordinary high water mark in creek/lake and adjacent wetlands; Section 404 Permit (Nationwide Permit or an Individual Permit); Application

2. National Marine Fisheries Service (NOAA Fisheries) and US Fish and Wildlife Service; Potential effects on federally-listed threatened or endangered species; Biological Opinion(s) through ESA Section 7 Consultation with USACE; Biological Assessment

3. NEPA Lead Agency (USACE); Federal discretionary action via Army Corps Section 404 Permit; Record of Decision; Environmental Impact Statement

4. San Francisco Bay Regional Water Quality Control Board (RWQCB);Section 404 Permit through USACE; Section 401 Water Quality Certification through Section 404 Permit with USACE; Application

5. California Department of Fish and Game (CDFG); Alteration of lake and streambed and potential effects on State-listed threatened or endangered species;1600 Lake and Streambed Alteration Agreement; CEQA document

6. State Historic Preservation Officer (SHPO); SHPO review and concurrence of inventory/evaluation report; CEQA/NEPA document

7. CEQA Lead Agency (Marin County); Certification; Environmental Impact Report

8. California Department of Water Resources, Division of Safety of Dams; Modification of existing dam; Permit; Application

Regulatory permitting will proceed concurrently with CEQA/NEPA environmental review. This approach offers flexibility and expands opportunities for mitigating impacts associated with the project. It will also streamline the environmental review and permitting processes.

The Phoenix Lake IRWM Retrofit is located in unincorporated lands owned and within the jurisdiction of MMWD. As such no local building permits will be required. However, all project design plans will require review and approval of MMWD.

Statewide Priorities:

Please select the statewide priorities that are addressed by this project. Check all that apply.

From Proposition 50 Guidelines *(pg 5)*

- ☐ Reduce conflicts between water rights users
- ☐ Implement TMDLs
- ☐ Implement RWQCB's Watershed Management Initiatives
- ☐ Implement SWRCB's NPS Pollution Plan
- ☐ Assist in meeting Delta Water Quality Objectives
- ☐ Implement recommendations of the floodplain, desalination, and recycling task forces, or of the state species recovery plan
- ☐ Address environmental justice concerns
- ☐ Assist in meeting the CALFED Bay-Delta Program goals

From Proposition 84 and Proposition 1E draft Guidelines *(pg 13-14)*

- ☒ Drought Preparedness
- ☐ Use and Reuse Water More Efficiently
- ☒ Climate Change Response Actions
- ☒ Expand Environmental Stewardship
- ☒ Practice Integrated Flood Management
- ☒ Protect Surface Water and Groundwater Quality
- ☐ Improve Tribal Water and Natural Resources
- ☐ Ensure Equitable Distribution of Benefits

Additional Notes:

Stakeholder Involvement and Coordination:

Please describe any coordination with stakeholders, land use agencies, or other state and local agencies. Please include a list of proposed stakeholders, how they have/will participate in the planning and implementation of the project, and how their involvement will influence the implementation of the project. Discuss efforts to address environmental justice concerns.

Design and operation of the Phoenix Lake IRWM Retrofit will be coordinated with several stakeholders, resource agencies, and municipalities in the area.

First and foremost, FZ9 and MMWD will coordinate joint use of Phoenix Lake. FZ9 and MMWD are working together to prepare a mutually acceptable Memorandum of Understanding for joint use of Phoenix Lake for flood control and water supply operations. The MOU is scheduled for consideration for approval by the respective Boards in April 2011.

The Marin County Flood Control District Flood Zone 9 has created this watershed-wide plan with the cooperation and participation of many of the stakeholders including citizen action groups the Flood Mitigation League of Ross Valley, Friends of Corte Madera Creek, Town of San Anselmo Flood Committee and representatives of the Public Works and Planning departments of the affected municipalities.

Friends of Corte Madera Creek Watershed has traditionally served as the primary non-governmental organization with interest in projects situated in the watershed. It is expected that Friends will continue in this role for the Phoenix Lake IRWM Retrofit. Friends of the Corte Madera Creek Watershed, an all-volunteer, non-profit organization, was founded in 1995 to protect the remaining natural ecosystems of the area, especially those relating to urbanized creeks and wetlands, and where possible to increase the diversity of these ecosystems. Friends recognizes that all activities – human and natural – within a watershed are interconnected, so that a wide range of issues must be addressed to meet their goals. Members of Friends are active participants in the FZ9 Technical Work Group (TWG) for the Ross Valley Watershed Flood Reduction Program. Through their active involvement in the TWG, members of Friends are reviewing, commenting and becoming directly involved in the formulation of the Phoenix Lake IRWM Retrofit. It is worth noting that Friends has provided to FZ9 water temperature data that its members have gathered through an extensive, multi-year monitoring program of Phoenix Lake and Ross Creek. FZ9 is using this data in developing this project.

The Town of Ross, which is located immediately downstream of Phoenix Lake, has promoted use of Phoenix Lake for flood detention in the past. A representative of the Town of Ross currently serves on the TWG, and the Town's continued participation and active involvment in the formulation of the Phoenix Lake IRWM Retrofit is expected.

The County of Marin Board of Supervisors formed the FZ9 Advisory Committee to advise the Board on FZ9 matters. The Committee is composed of seven members consisting of one member each from the Towns of Fairfax, San Anselmo, Ross, and Larkspur and the unincorporated communities of Sleepy Hollow, Kentfield and Greenbrae. The Committee reviews and advises the Board on actions concerning proposed project plans. The Phoenix Lake IRWM Retrofit will be developed with full oversight of the Committee.

General public and resource agency involvment and addressing of environmental justice issues will also occur during CEQA/NEPA environmental review.

Documentation of Feasibility:

Please identify any studies that document the technical and economic feasibility of the proposed project. If study is still in progress please indicate this next to its citation. If no studies exist, please type "N/A".

The feasibility of the Phoenix Lake IRWM Retrofit is documented in the Ross Valley Flood Reduction and Creek Management Master Plan Study (Stetson Engineers, et al., January 2011 (draft).

Detailed Project Description:

If desired, please provide a detailed description with additional information about the project.

Phoenix Lake is owned, operated, and maintained by the Marin Municipal Water District (MMWD) primarily for the purpose of water supply reserve for use during shortages, but also serves as wildlife habitat and a public recreation and enjoyment area. The lake is formed by an earthen embankment dam across Ross Creek that was built in 1906, enlarged in 1909, and strengthened in 1969. The watershed above Phoenix Lake encompasses about 1,400 acres. When full at elevation 174 ft, the lake covers 25 acres and holds approximately 300 acre-feet of water.

The dam is penetrated by a gated, 30-inch diameter, low-level, drain pipeline that has a discharge capacity of 115 cubic feet per second (51,600 gallons per minute) when the lake is full. The spillway is situated on the right side of the dam (looking upstream). In 1985 the spillway was modified by lowering the crest by six feet, from elevation 180 feet down to elevation 174 feet. This modification effectively lowered the normal lake water level and reduced the lake storage capacity by about 120 acre-feet, from 420 acre-feet to its present day capacity of 300 acre-feet.

Phoenix Lake currently functions as a de facto detention basin. During heavy storms, the lake water level rises above the spillway crest. This resulting "surcharge" storage attenuates stormflow and reduces the peak flow in Ross Creek immediately downstream as well as Corte Madera Creek below the Ross Creek confluence. The attenuation effect could be enhanced through changes in lake operations, raising of the spillway crest, and the modification of the intake/outlet works on the low-level drain pipeline. Close monitoring of watershed saturation conditions coupled with storm forecasting could provide early warning of possible flooding. Under these conditions, drawing the lake level down ahead of a forecasted storm will provide storage space in the lake to detain floodwaters. By installing a 6-foot high inflatable/deflatable rubber dam across the spillway, the lake level will be raised to its pre-1985 elevation of 180 feet during floods when additional storage capacity and attenuation are needed. The lake level will also be raised in the spring after the flood season has passed to capture additional water for summertime drought reserve water supply.

Phoenix Lake IRWM Retrofit improvements mainly include 1) modifying the intake/outlet works of the existing low-level drain pipeline (a 30" pipe with an intake elevation at 130 ft NGVD29) to have two water level-control gates, one at elevation 140 ft and the other at elevation 160 ft; 2) installing a 6-foot high inflatable/deflatable rubber dam across the spillway; 3) creating about 10-14 acre-ft of additional (dead) storage below elevation 140 ft by excavating the lake bottom near the existing low-level intake; 4) stabilizing the dam embankment; 5) installing emergency generators; 6) installing a "Solar Bee ©" epilimnetic circulation device designed to reduce growth of algea and invasive aquatic vegetation, thereby improving the water quality and reducing treatment costs during the summer when lake supply is most needed; and 7) improvements to near-lake parking, roads, and trails to reduce lake sedimentation and enhance overall public access and enjoyment of the lake.

Manipulation of lake levels for flood detention will be limited to the wet season which allows enough time for lake levels to return to normal by late spring. Flood detention operations will affect fishing opportunities and lake aesthetics during the wet season, but public use of the lake is minimal during this time.

Detention operations in Phoenix Lake basin will be primarily triggered by forecasts of potential flooding in Ross Creek and Corte Madera Creek in Ross. Phoenix Lake will be operated prior to a forecasted potential flood; during a flood, it will operate passively, i.e., on its own. Operations will follow a two-step procedure. The first step is initial drawdown of the lake and the second step is final drawdown of the

lake and maintained opening of the low-level outlet. The first step can occur at any time during the raining season. Watershed moisture conditions will be continually monitored by tracking soil moisture content, groundwater levels, discharges from seeps and springs, and base flows in creeks. When this monitoring indicates watershed moisture approaching saturation, then the lake will be gradually drawn down to elevation 160 ft, 14 ft below the existing spillway crest (Note: 24-hours is required for Step 1 drawdown), and maintained at that level using the newly modified 160 ft-elevation lake level-control intake. The second step will be triggered by a forecast of potential flooding issued by the National Weather Service, in which case the low level outlet will be opened and the lake will be further drawn down 20 ft (Note: 24-hours is required for Step 2 drawdown), to elevation 140 ft and maintained at that level using the newly modified 140 ft-elevation lake level control intake. The low-level outlet will remain open thereafter, continuing on its own to pass lake to Ross Creek below. The lake will begin to fill, passively, during the storm as inflow into the lake exceeds outflow through the low-level outlet. As the lake level rises and approaches the spillway the rubber dam will be inflated raising the spillway level by 6 ft and adding 120 acre-feet of attenuation capacity to the lake. During an extreme flood event, if the lake level rises above the rubber dam, water will flow over the rubber dam and through the spillway.

After the storm passes and flows in the creek subside, floodwaters temporarily stored in the detention basins will be released back to the creek, safely and in a controlled and coordinated fashion, at a rate that, when combined with the natural creek flow, is contained in the channel. As soon as is safe and practical Phoenix Lake will be drawn back down to its pre-flood, ready, condition at elevation 160 ft.

Review of the historical peak flood flows recorded at the streamflow gage in Ross indicates that, had Phoenix Lake been used for flood detention since February 1951 when the gage was installed, the lake would have been operated to receive flood flows during five events, as given in the table below. The lake would have been completely filled during two of these events.

Table of Hypothetical Historical Years of Phoenix Lake Use for Flood Detention

Flood Event	Filling of Detention Basin
1955	Partly full
1982	Full
1986	Partly full
1994	Partly full
2006	Full

As the lake refills in the spring by baseflows and freshet flows the rubber dam will be inflated and the lake will be refilled to elevation 180 ft, which is 6 ft higher that its existing full pool level and 120 acre-ft greater in terms of storage. The added storage will be available to MMWD for municipal use during the summertime if needed for drought reserve supply.

F I N A L

Bay Area IRWMP Coordinating Committee

Agreements and Action Items from March 28, 2011 Meeting

1. Roll Call—Appointed FA representatives present

WS-WQ	WW-RW	FP-SW	Watershed	Other
Marie Valmores, CCWD; Molly Petrick, SFPUC Brad Sherwood (SCWA)	Brian Campbell, EBMUD	Mark Boucher, CCCFCD	Harry Seraydarian, NBWA; Jennifer Krebs, SFEP; Matt Gerhart, SCC	Paul Helliker, Chair, MMWD

Others present:

Mitch Avalon, CCCFCD
Jack Betourne (NCFWCD)
Kevin Booker (SVCSD)
Chris Choo (Marin Flood)
Thomasin Grim (MMWD)
Dale Hopkins (SF RWQCB)
Carol Mahoney (Zone 7)
Carl Morrison (M&A, Zone 7, SCWA, StopWaste.Org)
Ben Harwood (Golden Gate NPC)
Gordon Becker (CEMAR)
Renee Weber (SCWA/NBWRA)
Rick Thomasser (Napa County)
Gary Lippner (DWR)
Vivien Maisonneuve (DWR)
Shicha Chander (DWR)
Dave Richardson (RMC)
Joanne Siew (RMC)
Josh Uecker (RMC)

2. Prop 1E Projects – Approve Addition of Projects to the IRWM Plan (Action, led by Chair/Project Screening Subcommittee)

- Brian Campbell gave an overview of the project screening process. There was an additional project suggested for inclusion in the IRWMP after the March 10 subcommittee meeting – Improving Quantitative Precipitation Information for the San Francisco Bay Region (Lead Agency: City and County of San Francisco, Dept. of Public Works, Bureau of Engineering). An email vote was conducted among the Project Screening Subcommittee, and the project received support from several subcommittee members. There were no objections to recommending the project for addition to the IRWMP.
- Mark Boucher provided a summary description of the new project to the CC. The project consists of up facing radars, additional Doppler radar stations, and other equipment to provide improved quantitative precipitation information. One benefit of including the project in the IRWMP now is to show that it has local support by being in the plan, and it will help leverage the project funding support at the national level. Mitch Avalon explained that in terms of water supply benefits, this project will offer valuable information for improving determinations of reservoir levels and release flow planning for flood control.

- The Project Screening subcommittee made a motion to the CC to add the 15 projects into the IRWMP. The motion was seconded by Thomasin Grim from MMWD. The motion was approved by consensus (no objection). The projects were added to the IRWM Plan as of March 28, 2011. Details of the projects are included in Appendix G (Projects added as of March 28, 2011) in the IRWMP.

3. Planning Grant Award Update (Information, led by Chair)

- Vivien Maisonneuve of DWR explained that Planning grant award letters should be coming out in about 2-4 weeks. The contract will be prepared once the letter has been signed and returned to DWR, and all conditions of the award letter have been met.

4. IRWM Plan Update

- Shicha Chander from DWR introduced herself as the contract manager for the Bay Area Planning Grant.
- Paul Helliker queried whether the letter from DWR will reference the proposal evaluation comments. Vivien confirmed that yes, the award letter will ask that DWR's proposal evaluation comments be addressed and reflected in the final Work Plan for the grant agreement, and that as the agreement is being completed other issues can be addressed (especially scheduling and invoicing dates). This process will minimize the need to do an amendment on the contract. DWR can also make some recommendations on where to have a more detailed/less detailed budget and where to shift funds if necessary. The time allowed for response to direction provided in the award letter is typically a 60-day window, but that is not definite yet.
- Paul Helliker commented that there wasn't a lot of detail on outreach to DACs and asked if that is information that should be clarified in the Work Plan. Vivien indicated that the lump sums indicated in the budget should be broken out, and will need to match the contract and invoicing amounts. Vivien added that the Planning grant contract template is now available on the DWR website: http://www.water.ca.gov/irwm/integregio_resourceslinks.cfm
- Paul noted that the attorney for MMWD has reviewed the contract template and has accepted the language. MMWD has an agreement template for subcontractors and will send it out to subcontractors identified in the grant proposal. MMWD will work with the IRWMP CC subcommittees to prepare an RFP seeking consultant assistance for the IRWM Plan update, to be distributed after the grant agreement Work Plan, Budget and Schedule for have been finalized.
- Gary Lippner of DWR clarified that they need to check with management to determine if eligible work performed for reimbursement could take place after the final awards were posted or after the commitment letters are sent.

Website Update

- Brian Campbell announced that Chris Choo has volunteered to be the point person to collate comments and suggestions for the website update. Chris suggested that she could send links to other existing IRWMP websites for interested parties to review as examples and then suggest the features that they would like for the Bay Area website. There was some discussion about who the customer base is for the website and how to determine when and to what extent to incorporate other stakeholder input (aside from IRWMP agencies). It was noted that DACs could have different input than the agencies.
- Paul Helliker suggested waiting until a final group is on board before developing the final scope of the work for the website consultant. David Seiband of Zentral is currently providing website updates and Prop 50 Implementation grant recipients are paying for the maintenance for the website.

ACTION ITEM: Chris Choo will write a short email about the request and send it to Joanne to forward to the CC distribution list. Chris Choo will collect the feedback. ***The deadline for providing website comments and input to Chris Choo is April 21, 2011***.

5. Funding of IRWMP Activities: Cost-sharing among Functional Areas (Discussion, led by BAFPAA/Carol Mahoney)

- Carl Mahoney reported that it was brought up at the BAFPAA meeting that there is a large disparity between the income for flood control districts and water/wastewater districts, which impacts on their ability to provide equal monetary contributions to the Bay Area IRWMP. Flood control districts usually have fixed income tied to project benefits, and are unable to raise rates. Water supply and wastewater districts typically have more flexibility in raising rates.
- The BAFPAA group has developed a preliminary three-tier contribution framework, which ranges from all agencies paying a fixed cost to different agencies paying variable amounts based on their operating budgets.

BASMAA

- It was also noted that since BASMAA does not really participate in the Bay Area IRWMP process, the burden of financing the IRWMP for the Flood Protection/Stormwater Management Functional Area is solely on the flood protection districts. One of the reasons given for BASMAA's reluctance to participate in the BAIRWMP is that they do not see any funding benefit from being involved since grant funds often cannot be used to offset a permit requirement or for mitigation.
- Jack Betourne responded as a Board Member of BASMAA that BASMAA is currently focused on working on the MRP which has a quick timeline. In addition, BASMAA's membership currently does not include members from all nine counties in SF Bay, and the projects put forward would benefit only 6 out of the 9 counties.
- Jack noted that in June 2011, BASMAA members will be issued the draft Phase 2 permit and will need to implement all TMDLS, and perhaps then the agencies would be more interested in joining the IRWMP. He queried if the CC were to approach BASMAA for funding when that would be – Paul Helliker noted that the CC would need the funding to be made available within the next few months.
- Mitch Avalon noted that since the MRP is for the next 5 years, there would be information on which projects can help meet the requirements and so they should be able to include projects in the Plan for funding. He also noted that this is an opportune time to get BASMAA involved with the IRWMP as part of the Plan update.

Functional Area Contributions

- Paul Helliker outlined the budget (total of $183K) that the four functional areas have agreed to provide as part of the Plan update and CC support:
    - Water agencies: $60K
    - Wastewater: $63K
    - Watershed/Coastal Conservancy: 25K$
    - Watershed/NBWA: $10K
    - Flood and Stormwater/BAFPAA: $25K

- Thomasin Grim indicated that more money may be needed for the IRWMP plan update, potentially as a grant-reimbursable expense to contributors, and is concerned that

MMWD will be caught in a cash flow bind if the functional areas are not able to meet their stated contributions or have capacity for additional contributions beyond the $183K.

Other Comments on IRWMP Financing

- Need to revisit funding framework
- Can financing of the IRWMP and supporting activities be included as a line item in the Work Plan to figure out how to integrate the four functional areas and develop a financial system to figure out cost sharing?
- Development and evaluation of cost-sharing approaches: e.g. cost-sharing based on population, or tiers based on range of operating budgets. It may be helpful as a first step to put together a list of the organizations that are involved, and include operating budgets for those particular functions.
- Carol Mahoney outlined proposals for cost-sharing:
    - All variable – assumed that all 10 agencies would be paying. 60% for larger agencies, 30% for medium agencies and 10% for smaller agencies of what the variable costs would be.
    - Fixed costs – every year, e.g. put $2K in the budget for BAFPAA, second layer of variable costs (e.g. addition $250 for smaller agencies, and $7K for larger agencies).
- Check with the Roundtable of Regions on how other IRWMPs are structuring their financing.
- Brian Campbell outlined how BACWA approaches cost-sharing. BACWA has five principal agencies of approximately equal size that contribute equally, with other agencies that contributing some as well. When it comes to voting on the budget, it's only the 5 principal members.
- Jack Betourne expressed that a structured method of looking at contributions would be preferred by BASMAA.
- Paul Helliker questioned whether it is worth coming up with a complex financing structure for the IRWMP if it ends up being a small amount like $8K per year for future CC support activities.
- Thomasin Grim noted that providing IRWMP support with staff time solely may be more in line with the budget constraints that the CC is facing.
- Chris Choo suggested that perhaps the regional groups should be formed and brought in to contribute their time. Jennifer Krebs supported the idea and indicated that the CC needs to think about regional projects.
- Matt Gerhart suggested that there be some sort of budget analysis for the next meeting, only thinking of what we spent to date as a starting point for budgeting in the future.

6. Next Steps

- Paul Helliker outlined the following actions for the future:
    - Scoping RFP
    - Selecting the consultant
    - Paul also pointed out that the budget for consultant support for CC meetings will probably be maxed out soon, assuming 2 hours of meeting support per month.
- Carl Morrison indicated that there is a need to start thinking about the projects that are desired to be developed to include in the Plan update, and to start engaging sub-regional stakeholders.

7. Announcements

- Gary Lippner provided details on the DWR conference that will be held on May 24-25 on "Integrated Regional Water Management: Working Together for California's Water Future". Details are provided in the attached flyer.

- California Water Plan – public advisory meeting (e-news website). Webinar publicly available for first time on the website. Meeting will discuss State financial plan – better financing of water projects. Next Plan update scheduled for 2013. See attached flyer for details.

- Regional Water Forums – conducted by DWR. Pulling together other departments (e.g. flood, water use and efficiency) for collaboration on Water Plan activities in the future. The Bay Area Regional Water Forum will be the first region. Design teams will be meeting in the next 4-6 weeks and the first forum will be held in May or June. Products coming out from the Regional Water Forum will include a regional report and the CA Water Plan update.

- Mitch Avalon is retiring from County service at the end of March, but will still work on contract with the County for about 6 months.

8. Agenda Items for next CC meeting

The next CC meeting will be held on April 25, 2011, from 1 – 3 pm.

- Scope of work for Planning Grant contract
- Budget review and upcoming expenses
- DWR Award Letter on the Planning Grant
- Update on the Prop 84 Implementation Grant proposal